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KOCH'S OBSERVATIONS ON GREENLAND'S ICE-CAP*

The broad outlines of the story of Koch and Wegener's crossing of Greenland have already been given (*Bull.*, Vol. 45, 1913, pp. 852 and 938). The experiences of the party as regards the glaciology and the atmospheric conditions largely confirm what is already known from the experiences of Nansen, Peary and de Quervain, while adding much that is new. Over the flat dome of the ice shield an area of atmospheric calm was traversed with much mist, which in the morning was so dense as to hide the sun. The air was so supersaturated with moisture that the clothing was almost constantly wet and could be dried occasionally only with great difficulty. When, at noonday, the sun had penetrated the mist in the thin air (barometer at 500 mm.), the ultraviolet rays were so little absorbed as to burn the face and cause painful blisters on nose, cheeks and lips, and these sores were much aggravated by the subsequent cold. In contrast with the central area of calm and supersaturated air, the marginal portions of the glacier were subject to continual storms, with wind descending the slopes and filling the air with drift-snow—likewise the prevailing characteristics of the fixed glacial anticyclone. An average advance of 9.3 miles per day was made. As the party advanced, the force of the wind diminished until the central area of calms was reached. Here the expedition encountered a great surprise, for the track of a fox was discovered almost in the middle of the journey. He may have followed the party from the margin of the continent, as did the snow sparrows.

As the party approached the western coast it encountered the same heavy, deep snow slush, the same sharp, jagged ice and the turbulent streams of thaw water which had been met with by the earlier expeditions, and which we know to be due to the fine rock dust that is carried inward where the migrating cyclonic movements of the atmosphere invade for short distances the margin of the fixed anticyclone.

The maximum altitude reached was about 10,000 feet, which, as was to be expected, is somewhat higher than that reached upon the shorter sections of earlier explorers, but which, unlike them, is to be found to the westward of the medial line.

During the winter in the hut upon the inland-ice modern methods of temperature study within the ice were applied through the sinking of bore-holes. These holes were carried to a depth of twenty-six feet outside the hut and to as much as seventy-eight feet from a point within it. The observations were carried out daily throughout the winter and showed that at depths where the ice temperature remains constant throughout the year it varies but little from the average air temperature of the locality, in this case -15° C. Passing to greater depths, a slight but measurable augmentation of temperature of 1° C. per sixty-five feet of depth was established. Above an elevation of 6,550 feet,

* Unsere Durchquerung Grönlands 1912-1913. Von J. P. Koch. *Maps. Zeitschr. Gesell. für Erdk. zu Berlin*, 1914, No. 1, pp. 34-50.

Vorläufiger Bericht über die wissenschaftlichen Ergebnisse der Expedition. Von Alfred Wegener. *Ibid.*, pp. 50-54.

which was found quite near the coast on both margins, all evidences of summer melting disappear, and the structural changes of the snow are entirely explained through sublimation. On top, there always lay a stratum of finely granular snow, which met a subjacent layer of coarse-grained material in a somewhat sharp boundary. In the marginal portions it was established that the finely granular layer corresponded to the winter precipitation; and since the thickness of this layer was measured throughout the journey, a good approximation as to the amount and the distribution of the annual precipitation over the inland-ice was arrived at. The thickness of this layer decreased from about eighteen inches near the east coast to about twelve inches in the interior, and then increased to about 3.3 feet as the west coast was approached. When near the center of the journey, during two days of rest, holes were carried down to a depth of from twenty to twenty-three feet, and a temperature of -32° C. was obtained, which was believed to correspond closely to the average air temperature of the locality (-15° C. at winter quarters on Storströmman glacier outlet).

The winter station of "Borg" was the first in connection with Arctic exploration to be located upon the inland-ice, although near its margin. The temperature observations are thus of particular interest in showing that the average winter temperature is about 5° C. lower than at Danmarkshavn on the outer coast, where the Denmark expedition wintered in 1906-08. If Wegener is correct in taking the average air temperature from that in the deep borings in the ice, this value is of interest in showing the gradation toward -32° C. which he derived for the interior of the continent. The precipitation at Borg was also found to be considerably less than on the coast, which is in conformity with the idea of nourishment of the continental glacier from other sources than the rising surface currents of air derived from the margins. On reaching the west coast a visit was made to the Jakobshavn glacier outlet, and the fact was established that this ice stream has retired several miles since it was last visited.

WILLIAM HERBERT HOBBS.

THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

There has been a growing feeling among teachers that there should be an organization devoted to advancing the teaching of geography, *i. e.*, an organization devoted to the study of educational problems. As a result of discussion at the St. Paul meeting of the National Education Association last summer, and of extensive correspondence, the desirability of forming such an association, together with a general plan of organization, was presented to the Association of American Geographers at the Chicago meeting in December, and met with its hearty approval. President Brigham appointed Richard E. Dodge, Teachers College, R. H. Whitbeck, University of Wisconsin, and Charles R. Dyer, Fort Wayne, as a committee to cooperate with others in the formation of the new organization. This committee was enlarged to include Charles C. Colby, Peabody College for Teachers, Nashville, Tenn., L. O. Packard, Boston Normal School, Boston, Mass., and George J. Miller, State Normal School, Mankato,